2. NOTES ON THE LARGE-EARED HEDGEHOG, *HEMIECHINUS AURITUS* GMELIN

Introduction

The present study was undertaken to collect information on the habitats and habits of hedgehogs in the rural areas of Etawah and Kanpur districts of Uttar Pradesh.

Materials and Methods

The animals were trapped by setting twenty traps baited with a piece of meat for 2-3 consecutive nights at random in each month of a calendar year. The traps were placed under hedges in different localities of rural areas of Etawah and Kanpur districts. These are relatively open areas with varied habitats including dense Eucalyptus, small to medium size dense shrubs and scattered trees. At times, burrows were also dug out to capture the animals. Overall, trapping was done 25 times in a year. The percentage of trapping success is depicted in Table 2.

Animals trapped from the wild were kept under seminatural condition in a terrarium (90 x 45 x 45 cm) fixed on the ground by the side of the animal house located in the college campus. The soil surface was covered with 90 cm of sand. Animals were released in the terrarium for about a week to acclimatize them to the conditions and then visual observations were made for 30 min. each day for 21 days on burrowing pattern and other activities. For studying the activity in the burrow, the opening of the burrow in the terrarium was covered with a glass pane. Even after this change the hedgehogs continued to use the tunnel. Sometimes, a burrow was dug out to study the internal structure and depth of the burrow.

Field work was also carried out to study burrow, habitat selection, and diurnal and annual activity from April 1992 to March 1993. Each trapped hedgehog was sexed and weighed. Physical measurements were recorded (Table 1). The animals were individually marked with paint and released. Such marks were recognizable for up to one year. After completion of the study these animals were released back in the field (Table 2).

Table 1
SIZE PARAMETERS OF LARGE-EARED HEDGEHOGS, *HEMIECHINUS AURITUS* GMELIN

	No. of animals	
Body length (mm)	12	220 + 12
Tail length (mm)	12	30 + 2
Foot length (mm)	12	45 + 2
Ear length (mm)	12	30 + 3
Body weight* (gm)	40	220 + 25

*Data on body weight included only wild trapped animals.

Table 2
THE TRAPPING SUCCESS OF HEDGEHOGS IN EACH MONTHS OF A CALENDAR YEAR

Months	Total No.	No. and percentage of animals trapped	Male	Female	Young
January	40	2, 5%	-	2	-
February	40	3, 7.5%	2	1	-
March	40	6, 15%	2	2	2
April	40	8, 20%	2	4	2
May	40	7, 17.5%	3	3	1
June	60	10, 16.6%	4	3	3
July	40	7, 17.5%	2	3	2
August	40	5, 12.5%	3	2	-
September	40	6, 15.0%	1	3	2
October	40	4, 10.0%	2	1	1
November	40	3, 7.5%	1	1	1
December	40	2, 5%	1	1	-

Results and Discussion

Present observations are based on the studies carried out in a terrarium, a seminatural device. Being nocturnal hedgehogs emerged at dusk and remained active for about 5 to 6 hrs and retired to their burrows at mid night. The little activity observed in the wild out side the burrow during the day was mainly that of 2-3 lactating females in months of April, May and June. It seems that the energy demands of the lactating females forced them to become active during the day. The nocturnal activity pattern was not affected by the presence or absence of moonlight.

The animals spent most of their time underground in small burrows invariably under a hedge or dense

bush, but never in open ground and loose soil. The burrows were simple and straight or L-shaped with single opening and were usually 60-90 cm in length. Only one individual occupied a burrow during February, except during breeding season (March to August) when the female lived with her offsprings. To accommodate the offsprings the female widened the blind distal end of the burrow. Animals tended to dig burrow at dusk or afterwards. Most of the burrow openings were on the slopes. In soft soil *Hemiechinus auritus* could dig about 10 cm in 5 minutes, in a manner similar to that reported in moles (Hisaw 1923) using their forelegs and hind legs.

There was a marked seasonality in trapping success. The peak was noticed in summer (April-July) while in winter months (December-February) the trapping success was least (Table 2). During May and early August most of the females were trapped with their litters. One female was accompanied with 4 to 6 young. The number of young trapped during different months of a calendar year is given in Table 2. The maximum body weight was in summer (March-July) and the minimum was in winter (December-January). The average difference in body weight of the animals between summer and winter was 12%. These differences were not found to be statistically significant (Student's 't' test, $P>0.01$), probably due to large variation between the individuals. The maximum body weight in summer is probably a reflection of greater food availability. The females lost much of their weight after parturition. The presence of a male reduced the weight of female in a captivity or under restriction of food. It seemed that male was dominant over the female in captivity (Personal observations, Unpublished).

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A. KUMAR
S.D. PANDEY
Department of Zoology, Christ Church College, Kanpur.

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3. DO SHREWS PREY UPON RATS?

Grey musk shrews, *Suncus murinus* (L.) are often found in houses, poultry farms, grain stores, shops and fields in Asia and Europe. Grey musk shrews feed on household insects such as cockroaches and crickets, as well as on other invertebrates, small amphibians and reptiles (Annon. 1990). The range of this species is increasing. Prater (1980) has described grey musk shrews as "very intolerant of rats" and are believed to repel the rats by their strong and obnoxious body odour.

We captured one grey musk shrew in a multicatch rat trap (wonder traps, Jalgaon) on 3 December 1992 along the fields of Punjab Agricultural University, Ludhiana (30°56' N, 75°52' E and *c.* 247 m above MSL), India. This shrew had apparently consumed a gerbille, *Tatera indica* (Hardwicke) in the trap. From the size of the tail and other remaining parts the gerbille appeared to have been a juvenile.

This apparent case of predation by the shrew on the rat was in a confined condition. In natural conditions the shrews might prey upon young and weak rats. On many earlier occasions, we have trapped grey musk shrews in the multicatch rat traps but did not recover any rodent along with a shrew (unpublished data). We think, either the trapped rodents might have been consumed by the shrews or, probably, they avoided entering a trap that already contained a shrew.

We hypothesize that the strong smell of musk emitted by shrews might be responsible for repelling adult rats and enable shrews to capture inexperienced young and diseased ones. This predatory capability of musk shrews towards rodents and potential of their musk as a rodent repellent needs to be investigated.

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M.S. SAINI
V.R. PARSHAD
Department of Zoology,
Punjab Agricultural University,
Ludhiana 141 004, India.

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